The State of New Jersey
Department of Environmental Protection

Proposed State Implementation Plan (SIP) Revision

Infrastructure and Transport Requirements
Clean Air Act (CAA) Section 110(a)(1) and 110(a)(2)
for the
2015 70 ppb 8-hour Ozone
National Ambient Air Quality Standard (NAAQS)

and

Transport Requirements
110(a)(2)(D)(i)(I)
for the
2008 75 ppb 8-hour Ozone NAAQS

and

Negative Declaration for the Oil and Natural Gas
Control Techniques Guidelines

October 2018

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Preface

The State of New Jersey is submitting a proposed revision to the State Implementation Plan (SIP) to address the Clean Air Act (CAA) Section 110 requirements for the 2015 8-hour Ozone National Ambient Air Quality Standard (NAAQS) of 70 parts per billion (ppb). This SIP revision includes a certification ("Certification") that the existing New Jersey SIP contains adequate provisions to address the requirements under 42 U.S.C. § 7410(a)(1) and (2) (also known as Section 110(a)(1) and (2)) of the CAA. There has been no change in authority with respect to the infrastructure requirements for the New Jersey Department of Environmental Protection to regulate, carry-out, and enforce the 2015 70 ppb 8-hour ozone NAAQS.

The Certification does not address the portion of 42 U.S.C. § 7410(a)(2)(D) (Section 110(a)(2)(D)(i)(I)) of the CAA, relating to transport of air pollution and commonly referred to as the "Good Neighbor" SIP. New Jersey is addressing its obligations under Section 110(a)(2)(D)(i)(I) separately within this document for both the 2008 and 2015 Ozone NAAQS.

New Jersey is also submitting a negative declaration that the Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry do not pertain to New Jersey. There are no source operations referenced in the CTG that are located in New Jersey.

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Acronyms

ACT	Alternative Control Technique
AQS	Air Quality System
APCA	Air Pollution Control Act
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CARB	California Air Resources Board
CBSA	Core Based Statistical Areas
CFR	Code of Federal Regulations
CSA	Combined Statistical Areas
CSAPR	Cross-State Air Pollution Rule
DERACR	Daily Emission Reductions to Annualized Cost Ratio
DG/DR	Distributed Generation/Demand Response
DVs	Design Values
EGUs	Electric Generating Units
EVR	Enhanced Vapor Recovery
FIP	Federal Implementation Plan
FR	Federal Register
HEDD	High Electric Demand Day
NAA	Nonattainment area
NAAQS	National Ambient Air Quality Standards
N.J.A.C.	New Jersey Administrative Code
NJLEV	Low Emission Vehicle Program
NJR	New Jersey Register
N.J.S.A.	New Jersey Statutes Annotated
NNSR	Nonattainment Area New Source Review
NO_x	Oxides of Nitrogen (nitrogen oxides)
NSR	New Source Review
OBD	On-board diagnostics
OTC	Ozone Transport Commission
OTR	Ozone Transport Region
ppb	Parts per billion
ppm	Parts per million
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technology
SIP	State Implementation Plan
SOTA	State of the Art
TBAC	Tertiary Butyl Acetate
TSD	Technical Support Document
USEPA	United States Environmental Protection Agency
U.S.C.	United States Code
VOC	Volatile Organic Compounds

1.0 Introduction

The Federal Clean Air Act (CAA) requires states to submit to the United States Environmental Protection Agency (USEPA) a State Implementation Plan (SIP), commonly referred to as the "Infrastructure SIP,"[1] when the USEPA establishes a new or revised National Ambient Air Quality Standard (NAAQS). An Infrastructure SIP demonstrates that the state has the authority to develop, implement, and enforce an air quality management program that provides for attainment and maintenance of the NAAQS. This SIP revision addresses this requirement for the 2015 70 ppb ozone NAAQS.

The USEPA guidance allows a state to submit a certification that determines that the provisions in its existing SIP are adequate with respect to a given Infrastructure SIP element revision.[2]

As part of this SIP revision, New Jersey is submitting several actions as follows:

- Certification that New Jersey's existing SIP satisfies the infrastructure requirements of CAA Section 110(a)(1) and 110(a)(2) for the 2015 ozone NAAQS;
- Documentation of changes to New Jersey's Infrastructure SIP since the last infrastructure SIP due to recent rule amendments;
- Transport requirements or "Good Neighbor" SIP revision pursuant to the requirements of Section 110(a)(2)(D)(i)(I) for the 2008 and 2015 ozone NAAQS; and;
- Negative declaration demonstrating that no facilities exist in the state that are applicable to the Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry.

This SIP revision demonstrates that New Jersey has addressed its requirements under Section 110(a)(1) and 110(a)(2), including its contribution to downwind ozone concentrations. New Jersey has implemented several significant control measures to reduce ozone precursors, nitrogen dioxide (NO_x) and volatile organic compounds (VOCs), including measures that are more stringent than other states and are costlier than the cost-effectiveness threshold used by the USEPA. In particular, New Jersey's regulations significantly reduce ozone pollution during peak power generation on hot summer days when elevated ozone concentrations typically occur.

New Jersey has demonstrated that it meets the "Good Neighbor" SIP requirements of the Clean Air Act for the 2008 and 2015 ozone NAAQS. New Jersey has determined that it only significantly contributes ozone to one nonattainment monitor outside its shared nonattainment areas. New Jersey has addressed its "Good Neighbor" SIP obligations by implementing significant control measures that are more stringent than other upwind and nearby states.

As shown in New Jersey's Attainment Demonstration for the 2008 Ozone NAAQS,[3] New Jersey's NO_x and VOC emissions have decreased significantly. Additionally, the largest source sector contributing to NO_x emissions within the nonattainment area and the region continue to

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[1] 42 U.S.C. § 7410 (a)(1) or CAA Section 110(a)(1).

[2] USEPA Memorandum from Stephen D. Page, Director, Office of Air Quality Planning and Standards, to Regional Air Directors, "Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and 110(a)(2)," September 13, 2013. https://www3.epa.gov/airquality/urbanair/sipstatus/docs/Guidance_on_Infrastructure_SIP_Elements_Multipollutant_FINAL_Sept_2013.pdf

[3] NJDEP 1997 84 ppb and 2008 75 ppb 8-Hour Ozone Attainment Demonstration and Nonattainment New Source Review Program Compliance Certification, December 27, 2017. https://www.nj.gov/dep/baqp/ozone75ppb/Ozone%2075%20ppb%20Attain%20North-NNSR%20SIP%2012-14-17%20Revised%208-9-18.pdf

be mobile sources. States are limited in their authority to address these emissions, yet New Jersey has implemented some of the most stringent mobile source programs in the country. However, states also rely on Federal measures to achieve significant emission reductions from this sector.

New Jersey is complying with the USEPA's requirements regarding interstate transport as it relates to the 8-hour ozone NAAQS and has done its part to ensure that it is not interfering with the ability of its neighboring states to attain and maintain both the 2008 and 2015 ozone NAAQS. Therefore, New Jersey has met its CAA Section 110(a)(2)(D)(i)(I) "Good Neighbor" SIP obligations for these standards.

2.0 Background

On October 17, 2014, the NJDEP submitted a Multi-Pollutant Infrastructure SIP revision to USEPA, which addressed the requirements of CAA Section 110(a)(1) and 110(a)(2) for the most current NAAQS, including the 2008 8-hour ozone NAAQS of 75 ppb.

On October 1, 2015, USEPA strengthened the ground-level ozone NAAQS to an 8-hour average concentration of 0.070 ppm (hereafter referred to as 70 ppb). Pursuant to Section 110(a)(1) of the CAA, states are required to submit a revised SIP, referred to as an "Infrastructure SIP," meeting the requirements of Section 110(a)(2) within three years after promulgation of a new or revised NAAQS. Section 110(a)(2) requires states to show they have the "infrastructure" in place to implement basic SIP requirements, such as permitting, emissions inventories, monitoring, enforcement and modeling, to ensure attainment and maintenance of the NAAQS. States are required to submit Infrastructure SIPs for the 2015 ozone NAAQS to USEPA by October 1, 2018.

On November 16, 2015, the USEPA proposed an update to its existing Cross-State Air Pollution Rule ("CSAPR Update").[4] The purpose of the CSAPR Update was to "partially" address the "Good Neighbor" requirements of Section 110(a)(2)(D)(i)(I). The CSAPR Update also served as a Federal Implementation Plan (FIP) to address the transport of ozone and its precursors from upwind states that significantly contribute to ozone nonattainment or interfere with maintenance of the 2008 75 ppb 8-hour ozone NAAQS in downwind areas for those states that failed to submit a complete "Good Neighbor" SIP.

On March 30, 2016, New Jersey withdrew the CAA Section 110(a)(2)(D)(i)(I) transport portion of its October 17, 2014 Infrastructure SIP revision as it related to the 2008 75 ppb 8-hour ozone NAAQS. This withdrawal was at USEPA's request to facilitate USEPA's progress in implementing the FIP, especially on those upwind states significantly contributing to ozone levels in New Jersey and its shared nonattainment areas. The withdrawal allowed USEPA to include New Jersey in the CSAPR Update FIP.

On September 7, 2016, the USEPA finalized its CSAPR Update for the 2008 75 ppb 8-hour ozone NAAQS.[5] At the time, USEPA acknowledged that the 2016 CSAPR Update does not fully address the problem of upwind transport and only provides a "partial" remedy for the significant contribution of upwind states to downwind nonattainment and maintenance areas for the 2008 75 ppb 8-hour ozone NAAQS.[6]

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[4] 80 Fed. Reg. 75706, December 3, 2015.
[5] 81 Fed. Reg. 74504, October 26, 2016.
[6] USEPA Fact Sheet for the Final Cross-State Air Pollution Rule Update for the 2008 NAAQS, June 2017. https://www.epa.gov/airmarkets/fact-sheet-final-cross-state-air-pollution-rule-update-2008-naaqs

On September 19, 2016, the USEPA partially approved and partially disapproved elements of the New Jersey Multi-Pollutant Infrastructure SIP revision. Specifically, USEPA approved the interstate transport provisions related to visibility (prong 4 of Section 110(A)(2)(D)(i)(II)) and disapproved the requirements related to the Prevention of Significant Deterioration (PSD) of Air Quality (prong 3 of Section 110(A)(2)(D)(i)(II)).[7] USEPA noted in its disapproval that New Jersey is complying with the Federal PSD requirements by accepting delegation of the Federal rules and has been successfully implementing this program for many years. USEPA does not recognize a delegated PSD program as satisfying the Infrastructure SIP requirements; however, the disapprovals will not trigger any sanctions or additional Federal Implementation Plan obligation because a PSD Federal Implementation Plan is already in place. New Jersey's regulations at N.J.A.C. 7:27-8.5, 18, and 22.8 meet the Federal requirements for preventing a violation of the NAAQS in areas already attaining the NAAQS. The entire state of New Jersey is in nonattainment for ozone, therefore, nonattainment new source review (NNSR) applies in New Jersey for ozone, not PSD.

On January 6, 2017, the USEPA issued a "Notice of Availability of the Environmental Protection Agency's Preliminary Interstate Ozone Transport Modeling Data for the 2015 Ozone NAAQS" (NODA) for public comment. The information included emission inventories and modeling results for 2011 and 2023 modeling platform.[8]

On October 27, 2017, the USEPA issued a transport guidance memo for the 2008 ozone NAAQS with supplemental updated 2023 modeling based on comments received on the NODA and different technical scenarios.[9]

On March 27, 2018, the USEPA issued a transport guidance memo that provided an update to the January 2017 contribution modeling for the 2015 ozone NAAQS and built upon the information provided in the October 2017 memo.[10]

In May 2018, in response to stakeholder comments on the March 27, 2018 memo, the USEPA revised the contribution metric spreadsheet for the 2023 modeling platform originally posted in March 2018 to include the most recent design values (i.e., 2014-2016) and information regarding "home state" and upwind state collective contribution.[11]

On May 30, 2018, the USEPA issued a final rule to approve the remaining elements of New Jersey's Multi-Pollutant Infrastructure SIP revision for the 2008 ozone NAAQS, except the "Good Neighbor" component as noted previously. [12]

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[7] 81 Fed. Reg. 64070, September 19, 2016.

[8] 82 Fed. Reg. 1733, January 6, 2017. https://www.epa.gov/airmarkets/notice-data-availability-preliminary-interstate-ozone-transport-modeling-data-2015-ozone

[9] USEPA Memo titled "Supplemental Information on the Interstate Transport State Implementation Plan Submissions for the 2008 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I), October 27, 2017." https://www.epa.gov/airmarkets/october-2017-memo-and-supplemental-information-interstate-transport-sips-2008-ozone-naaqs

[10] "USEPA Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(1)(I)(I), March 27, 2018," and Supplemental Information Regarding Interstate Transport SIPs for the 2015 Ozone NAAQS, https://www.epa.gov/airmarkets/memo-and-supplemental-information-regarding-interstate-transport-sips-2015-ozone-naaqs

[11] Ibid

[12] 83 Fed. Reg. 24661, May 30, 2018.

On July 10, 2018, the USEPA issued a proposed rule "Determination Regarding Good Neighbor Obligations for the 2008 Ozone National Ambient Air Quality Standard," hereafter referred to as the USEPA 2018 Good Neighbor Proposal.[13] The rule proposes a determination that, for 20 states for which USEPA has not proposed or taken separate action, the 2016 CSAPR Update fully satisfied the obligations of these states and USEPA under the good neighbor provision of the Act for the 2008 ozone NAAQS. USEPA relies on the cost-effectiveness threshold established in the 2016 CSAPR Update and the subsequent USEPA 2023 Transport Modeling. New Jersey does not agree with this proposal, the control measure assumptions, its cost-effectiveness threshold or its use of 2023 modeling for a 2018 attainment date, as discussed further in this SIP.

3.0 Certification of Adequacy Regarding CAA Sections 110(a)(1) and (2) for the 2015 Ozone NAAQS

New Jersey is certifying that its already approved existing SIP contains provisions to adequately satisfy the infrastructure requirements of CAA Sections 110(a)(1) and (2), with the exception of Section 110(a)(2)(D)(i)(I) for the "Good Neighbor" SIP requirements as it pertains to the 2015 ozone NAAQS. Per USEPA guidance,[14] an air agency may make a SIP submittal in the form of a certification that the already approved existing SIP is sufficient to meet the requirements for the revised ozone standards.

The contents of this SIP remain the same as approved for the Multi-Pollutant Infrastructure SIP submitted to the USEPA on October 17, 2014, except for the changes listed in Table 1. The current changes noted include updates to existing rules.

Table 1: Changes to New Jersey's Infrastructure SIP

CAA Section	Summary of Element	NJ Authority if Revision or New Submission
110(a)(2)(A)	Emissions Limits and Other Control Measures	New Jersey has the authority under the Air Pollution Control Act (APCA) at N.J.S.A. 26:2C-8, 9, 18, and 19 and has established enforceable emission limitations for all criteria air pollutants in its rules at N.J.A.C. 7:27. New Jersey has adopted rule amendments that effect N.J.A.C. 7:27 and N.J.A.C. 7:27A related to Air Emission Control and Permitting Exemptions, Hazardous Air Pollutant Reporting Thresholds, and the CAIR NO_x Trading Program and NO_x Budget Trading Program (50 NJR 454(a), January 16, 2018). These changes are based on New Jersey's experience with Superstorm Sandy, updated data and new methodologies to determine hazardous (HAP) thresholds, changes in Federal requirements regarding state programs to address emissions of nitrogen oxides (NO_x), and discussions that New Jersey has held with representatives of the regulated community and environmental groups. Rule amendments have also been adopted related to Tertiary Butyl Acetate (TBAC) Emissions Reporting, consistency between major

[13] 83 Fed. Reg. 31915, July 10, 2018.
[14] Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and 110(a)(2), September 13, 2013.

CAA Section	Summary of Element	NJ Authority if Revision or New Submission
		and minor permits, and Gasoline Transfer Operations (49 NJR 3590(a), November 20, 2017). New Jersey certifies that these changes do not affect the State's ability to enforce control measures or regulate the modification and construction of any stationary source within the area covered by the SIP as necessary for the 2015 Ozone NAAQS.
110(a)(2)(B)	Ambient Air Quality Monitoring/Data System	No change; New Jersey annual air quality reports are posted on New Jersey's website at http://www.njaqinow.net/
110(a)(2)(C)	Programs for Enforcement of Control Measures and for Construction or Modification of Stationary Sources	New Jersey's authority at N.J.S.A. 26:2C-9b and 9.1 and N.J.S.A. 13:1D-9 allows for the creation of enforcement and permitting programs that meet the Federal Clean Air Act requirements. New Jersey's enforcement of all control measures, including the air permitting program for regulating stationary sources, is governed by the APCA at N.J.S.A. 26:2C-19. New Jersey's enforcement and permitting programs operate under rules designated in N.J.A.C. 7:27 and N.J.A.C. 7:27A. Attainment status determines if the Federal Prevention of Significant Deterioration (PSD) or Nonattainment Area New Source Review (NNSR) rules apply to the area. The entire state of New Jersey is in nonattainment for ozone, therefore, NNSR applies in New Jersey for ozone, not PSD. New Jersey's NNSR rules codified at N.J.A.C. 7:27-18 are at least as stringent as the Federal requirements at 40 CFR 51.165 for ozone and its precursors as amended by the final rule entitled "Implementation of the 2008 National Ambient Air Quality Standard for Ozone: State Implementation Plan Requirements (80 FR 12264, March 6, 2015) and satisfy Federal requirements. The PSD program applies when a major source, located in an area designated as attainment or unclassifiable for any criteria pollutant, is constructed or undergoes a major modification.[15] New Jersey accepted delegation of the administration of the PSD program from the USEPA on February 22, 1983 and the provisions of 40 CFR 52.21(b) through (w), related to Prevention of Significant Deterioration, were incorporated into New Jersey's SIP at 40 CFR 52.1603(b). New Jersey's delegation was most recently revised on July 11, 2011. New Jersey's delegated PSD program evaluates the impact of new or modified sources to prevent a violation of the NAAQS and meet the Federal PSD permitting requirements. Changes affecting N.J.A.C. 7:27 and N.J.A.C. 7:27A have been made through the following rule amendments: Air Emission Control and Permitting Exemptions, Hazardous Air Pollutant Reporting Thresholds, and CAIR NO_x Trading Program and NO_x Budget Trading Program (50 NJR 454(a), January 16, 2018); TBAC

[15] In addition, the PSD program applies to non-criteria pollutants subject to regulation under the Federal Clean Air Act, except those pollutants regulated under Section 112 and pollutants subject to regulation only under Section 211(o). (73 Fed. Reg. 67040, November 12, 2008)

CAA Section	Summary of Element	NJ Authority if Revision or New Submission
		Emissions Reporting, Permitting, and Gasoline Transfer Operations (49 NJR 3590(a), November 20, 2017); New Jersey's Control and Prohibition of Air Pollution by Volatile Organic Compounds and Control and Prohibition of Air Pollution by Oxides of Nitrogen (49 NJR 3518(a), November 20, 2017); and New Jersey's Motor Vehicle Inspection and Maintenance Program (48 NJR 748(a) and 48 NJR 2049(a), October 3, 2016)). New Jersey certifies that these changes do not affect the State's ability to enforce control measures or regulate the modification and construction of any stationary source within the area covered by the SIP as necessary to insure the 2015 Ozone NAAQS. These changes establish penalty provisions for violations of newly amended and adopted rules and are consistent with existing penalties.
110(a)(2)(D)	Interstate Pollution Transport, Abatement, and International Air Pollution	NJDEP is addressing 110(a)(2)(D), also known as "Good Neighbor," separately in this SIP submission.
110(a)(2)(E)	Adequate Resources and Authority, Conflict of Interest, and Oversight of Local Governments and Regional Agencies	No change
110(a)(2)(F)	Stationary Source Monitoring and Reporting	Major and minor sources are required to monitor and report emissions. New Jersey updated N.J.A.C. 7:27-8 and 7:27-22 in Air Emission Control and Permitting Exemptions, Hazardous Air Pollutant Reporting Thresholds, and CAIR NO_x Trading Program and NO_x Budget Trading Program (50 NJR 454(a), January 16, 2018) and TBAC Emissions Reporting, Permitting, and Gasoline Transfer Operations (49 NJR 3590(a), November 20, 2017). New Jersey certifies that these changes do not affect the State's ability to enforce control measures or regulate the modification and construction of any stationary source within the area covered by the SIP as necessary for the 2015 Ozone NAAQS.
110(a)(2)(G)	Emergency Powers	No change
110(a)(2)(H)	SIP Revisions	No change
110(a)(2)(I)	Plan Revisions for Nonattainment Areas	Not required in this document. USEPA has determined that this element does not need to be addressed in the context of an infrastructure SIP submission.
110(a)(2)(J)	Consultation with Government	No change

CAA Section	Summary of Element	NJ Authority if Revision or New Submission
	Officials, Public Notification, and PSD and Visibility Protection	
110(a)(2)(K)	Air Quality Modeling and Submission of Modeling Data	No change
110(a)(2)(L)	Permitting Fees	No change
110(a)(2)(M)	Consultation and Participation by Affected Local Entities	No change

4.0 "Good Neighbor" Interstate Transport Infrastructure Elements of the CAA Section 110(a)(2)(D)(i)(I) for 2015 70 ppb Ozone NAAQS

4.1 Good Neighbor Analysis Methodology

The CAA Section 110(a)(2)(D)(i)(I) (42 U.S.C. § 7410(a)(2)(D)(i)(I), referred to as the "Good Neighbor" portion of the Infrastructure SIP), requires that each state's SIP contain adequate provisions prohibiting sources within the state from emitting air pollutants that will interfere with the maintenance of, or contribute significantly to nonattainment of, the NAAQS in another state. To assist states in addressing the "Good Neighbor" SIP requirements, the USEPA developed a four-step approach for addressing interstate transport requirements with respect to the ozone NAAQS. According to USEPA's guidance titled "Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(1)(i)(I)" dated March 27, 2018, the four steps are defined as follows:

(1) identify downwind air quality problems;

(2) identify upwind states that contribute enough to those downwind air quality problems to warrant further review and analysis;

(3) identify the emissions reductions necessary (if any), considering cost and air quality factors, to prevent an identified upwind state from contributing significantly to those downwind air quality problems; and,

(4) adopt permanent and enforceable measures needed to achieve those emissions reductions.

New Jersey followed USEPA's 4-step framework to determine its obligation for addressing its significant contribution to ozone at downwind nonattainment monitors and monitors predicted to potentially have challenges maintaining the NAAQS.

New Jersey includes an analysis of its significant contribution to those nonattainment monitors within its shared, multi-state nonattainment area boundaries as part of this "Good Neighbor" analysis and the 4-step framework.

4.2 Photochemical Modeling

The USEPA March 27, 2018 Guidance Memo with updated May 2018 supplemental modeling data[16] provides 2023 modeling as the basis for applying the 4-step framework analysis; however, New Jersey believes the 2023 future year is not protective of Marginal nonattainment areas, which have an attainment date of July 20, 2021, meaning attainment would be determined based on ozone season air quality data from years 2018, 2019 and 2020.

New Jersey also has concerns regarding the control measure assumptions and their enforceability with regards to USEPA's 2023 future modeling and that the 2023 modeling results are overly optimistic compared to current air quality and other modeling results. USEPA requested that New Jersey include 2023 modeling results within its analysis.

New Jersey is including in this analysis regional 2023 modeling conducted under the coordination of the Ozone Transport Commission (OTC) Modeling Committee. Several states and modeling centers performed the regional modeling runs and/or contributed to the preparation of technical information for the regional modeling effort. As recommended in the USEPA 2014 Modeling Guidance[17] and like the USEPA 2023 transport modeling, the photochemical model selected for the modeling demonstration was the USEPA's Comprehensive Air Quality Model with eXtensions (CAMx) version 6.3. The CAMx model requires specific inputs, such as meteorological information and emissions information. More detailed information about the modeling is included in the OTC/MANE-VU 2011-Based Modeling Platform Support Document, dated October 18, 2018 (hereafter referred to as the OTC 2023 Modeling TSD) in Appendix I.

4.3 Regional Modeling Air Emission Inventory

To perform this modeling demonstration, two regional air emission inventories were developed to represent the 2011 base inventory and the 2023 projected future grown and controlled inventory for input in the photochemical model.

The modeling inventories include annual county-level emissions for criteria air pollutants and their precursors, NO_x, VOC, CO, PM2.5, PM10, SO_2, NH_3, by emission sector for the State and Local agencies included in the Mid-Atlantic Northeastern Visibility Union (MANE-VU) modeling domain. The USEPA SMOKE model was used to process the air emissions inventory to prepare them for input into the CAMx model. Much of OTC's modeling inventory is consistent with USEPA's. The most notable difference between OTC's and USEPA's modeling inventories is in the power plant or Electric Generating Unit (EGU) sector. The OTC modeling includes hourly emissions for the EGU sector consistent with the USEPA's Clean Air Markets Division (CAMD) for the 2011 base year and projected to 2023 using the Eastern Regional Technical Advisory Committee (ERTAC) EGU Projection Tool. The ERTAC EGU tool was developed through the ERTAC collaborative process for use in projecting future EGU emissions. Hourly

[16] "USEPA Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(1)(I)(I), March 27, 2018," and Supplemental Information Regarding Interstate Transport SIPs for the 2015 Ozone NAAQS, https://www.epa.gov/airmarkets/memo-and-supplemental-information-regarding-interstate-transport-sips-2015-ozone-naaqs

[17] USEPA Memorandum, "Draft Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze", Richard Wayland, December 3, 2014.

temporal profiles for the electric generating unit sector are consistent with CAMD. USEPA uses the Integrated Planning Model (IPM) to project EGU emissions. The OTC feels the ERTAC model is more representative of projected conditions.

Further details about the modeling inventories can be found in the OTC 2023 Modeling TSD and "Technical Support Document: Emission Inventory Development for 2011 and Projections to 2020 and 2023 for the Northeastern U.S. Gamma Version"[18] located in Appendix II.

4.4 4-Step Framework Analysis to Determine Significant Contribution to Downwind Nonattainment

Step 1: Identify downwind air quality problems

The OTC 2023 modeling was evaluated to determine nonattainment and maintenance monitors. Monitors that are in nonattainment are deemed to also have maintenance problems. Some monitors that may be measuring attainment now may not be able to maintain this attainment in the future. These monitors are referred to as "maintenance-only monitors." Following the 2016 CSAPR Update approach, the OTC evaluated downwind monitor sites in the modeling domain for nonattainment based on a predicted 2023 average design value greater than 70 ppb after truncation. The OTC also evaluated downwind monitor sites in the modeling domain for potential maintenance-only sites based on a predicted 2023 maximum design value greater than or equal to 70 ppb. The resulting list is shown in Table 2.

Table 2: Nonattainment and Maintenance Receptor Sites with Ozone Design Values >70ppb

Site	State	County	Monitor	Predicted 2023 Average Design Value (ppb)	Predicted 2023 Max Design Value (ppb)	2023 Status
90010017	Connecticut	Fairfield	Greenwich	69.5	71.8	Maintenance
90013007	Connecticut	Fairfield	Stratford	70.6	74.5	Maintenance
90019003	Connecticut	Fairfield	Sherwood Island	71.9	74.7	Nonattainment
90099002	Connecticut	New Haven	New Haven	69.9	72.6	Maintenance
240251001	Maryland	Harford	Edgewood	71.1	74.2	Nonattainment
360810124	New York	Queens	Queens College	69.4	71.2	Maintenance
360850067	New York	Richmond	Susan Wagner	71.1	72.6	Nonattainment
361030002	New York	Suffolk	Babylon	72	73.5	Nonattainment

[18] "Technical Support Document: Emission Inventory Development for 2011 and Projections to 2020 and 2023 for the Northeastern U.S. Gamma Version", J. McDill and S. McCusker, January 29, 2018. Found at http://www.marama.org/images/stories/documents/TSD_GAMMA_Northeast_Emission_Inventory_for_2011_2023_20180131.pdf

Step 2: Identify upwind states that contribute enough to those downwind air quality problems to warrant further review and analysis

The next step in the 4-step approach is to determine to which monitors the emissions from New Jersey significantly contribute to nonattainment or prohibit a state's ability to maintain the ozone standard. A state is considered a "significant contributor" when the total emissions from the state contribute more than one percent of the NAAQS (greater than 0.70 parts per billion (ppb)) to a monitor with nonattainment or maintenance problems.

Based on the OTC 2023 Transport Modeling, Table 3 shows New Jersey's predicted contribution to downwind nonattainment monitors and Table 4 shows New Jersey's predicted contribution to downwind maintenance monitors, in 2023. Additional details are included in the OTC 2023 Modeling TSD in Appendix I.

Table 3: Predicted New Jersey Contribution (ppb) to Monitors Projected to be in Nonattainment in 2023

State	Sherwood Island, CT (90019003)	Edgewood, MD (240251001)	Susan Wagner, NY (360850067)	Babylon, NY (361030002)
NJ	8.217	0.343	11.084	8.677

Table 4: Predicted New Jersey Contribution (ppb) to Monitors Projected to be in Maintenance in 2023

State	Greenwich, CT (90010017)	Stratford, CT (90013007)	New Haven, CT (90099002)	Queens College, NY (360810124)
NJ	6.621	7.16	5.734	8.368

As shown in Tables 3 and 4, the only area monitors to which New Jersey is predicted to significantly contribute are monitors located in New Jersey's shared multi-state nonattainment area. New Jersey does not significantly contribute to the Edgewood MD nonattainment monitor (greater than 0.70 (ppb).

Step 3: Identify the emissions reductions necessary (if any), considering cost and air quality factors, to prevent an identified upwind state from contributing significantly to those downwind air quality problems; and

Step 4: Adopt permanent and enforceable measures needed to achieve those emissions reductions.

While New Jersey believes USEPA's choice of 2023 for modeling is not protective of marginal areas with an earlier attainment date of 2020, the predicted data discussed above in Steps 1 and 2, in conjunction with the control measures New Jersey has adopted and implemented, satisfy the CAA requirements for a transport demonstration for New Jersey. Additional details regarding New Jersey's assessment for ensuring attainment and maintenance of the 2015

ozone NAAQS at those monitors within its defined nonattainment areas would be further demonstrated in its Attainment Demonstration Plan consistent with the requirements of CAA Section 182.

New Jersey has met and exceeded its obligation under the Good Neighbor provisions of the CAA due to existing, adopted control measures that go beyond the current measures implemented within the Greater Connecticut (Greater CT) nonattainment area and other upwind and nearby states. Therefore, no additional measures beyond those already implemented are required or will be adopted.

New Jersey has taken several actions to reduce ozone pollution and address its contribution to downwind nonattainment areas. These actions have resulted in significant decreases in New Jersey's NO_x and VOC emissions. A summary of New Jersey's post 2002 measures has been included as Table 5 below. A more detailed discussion of the measures can be found in New Jersey's ozone attainment demonstration dated December 27, 2017.[19] A brief overview follows. From 1990 to 2017, New Jersey's annual NO_x and VOC emissions have each decreased approximately 77 percent. From 2011 to 2017, annual NO_x and VOC emissions have decreased approximately 31 percent and 17 percent, respectively. A significant decreasing trend has also been shown in 8-hour ozone air quality monitoring design values in New Jersey of approximately 40 percent from 1988 to 2017 and 13 percent from 2011 to 2017.

As discussed in New Jersey's ozone attainment demonstration, New Jersey has met Reasonably Available Control Measures (RACM) and Reasonably Available Control Technology (RACT) requirements and has gone beyond RACM and RACT by adopting control measures more stringent than Federal rules and rules adopted in other states. New Jersey's rules, especially those that address NO_x emissions from power generation on high ozone days, are setting the standard for what RACT should be. The following are highlights of some of New Jersey's control measures:

- Power Plants: New Jersey has enforceable, short-term performance standards for NO_x and VOC emissions from power plants, or Electric Generating Units (EGUs), that are among the most stringent and effective air pollution control regulations in the country. New Jersey has taken the lead by adopting measures to address emissions from EGUs that operate on High Electric Demand Days (HEDDs) when ozone concentrations tend to be elevated.

- Distributed Generation/Demand Response (DG/DR): New Jersey's rules for stationary reciprocating internal combustion engines (RICE) do not allow the use of uncontrolled engines for the purpose of distributed electric generation or demand response in non-emergency situations. New Jersey also regulates engines at a low capacity threshold of 37 kilowatts. However, in some other upwind states these engines are uncontrolled and used to assist the electric grid during high electric demand periods. Like HEDD EGUs, many of these engines are operating on hot summer days that usually coincide with the high ozone days.

- Municipal Waste Combustors: New Jersey has implemented measures to control NO_x emissions from Municipal Waste Combustors. New Jersey has taken significant actions to address these important sources while the USEPA, and other nearby states, including upwind states that significantly contribute to ozone nonattainment, have not.

[19] NJDEP 1997 84 ppb and 2008 75 ppb 8-Hour Ozone Attainment Demonstration and Nonattainment New Source Review Program Compliance Certification, December 27, 2017. (Previously referenced.)

- Mobile Source Controls: New Jersey has addressed emissions from mobile sources to the extent that State action is not pre-empted by the Clean Air Act. New Jersey has adopted a Low Emission Vehicle Program (NJLEV) addressing motor vehicle emissions based on the standards used by the State of California to ensure that the lowest emitting vehicles available in the nation are sold in New Jersey including zero emission vehicle standards. Other states have not made the same commitment. New Jersey also has some of the most stringent rules in the country for vehicle idling and heavy-duty vehicle inspection and maintenance using on-board diagnostics (OBD) technology.

In addition, New Jersey recently adopted additional VOC and NO_x controls to address four USEPA Control Techniques Guidelines (CTG), two NO_x Alternative Control Technique (ACT) categories and updated controls at gasoline dispensing facilities as follows:

1. Industrial Cleaning Solvents (2006 CTG);
2. Paper, Film, and Foil Coatings (2007 CTG);
3. Fiberglass Boat Manufacturing Materials (2008 CTG);
4. Misc. Metal and Plastic Parts Coatings (2008 CTG);
5. Stationary reciprocating internal combustion engine (RICE) (NO_x ACT) and Stationary gas turbines (NO_x ACT) as they relate to natural gas compressors;
6. California Air Resources Board (CARB) enhanced vapor recovery (EVR) certified Phase I vapor recovery systems, dripless nozzles and low permeation hoses.

Table 5: New Jersey Post-2002 Control Measure Summary

Control Measure	Pollutant	Estimated Cost-Effectiveness in Rule Proposal	New Jersey Administrative Code	Rule Proposal Date	USEPA Approval
Adhesives and Sealants 2009	VOC	Net Savings to $2,320/ton	NJAC 7:27-26	11/5/07	7/22/10
Architectural Surface Coatings	VOC	$5,580/ton average, Range: Net Savings to $15,300/ton	NJAC 7:27-23	7/21/03	11/30/05
Asphalt Paving: Cutback and Emulsified	VOC	No increased cost	NJAC 7:27-16.19	8/4/08	8/3/10
Asphalt Production	NO_x	$2,500-38,000/ton	NJAC 7:27-19.9	8/4/08	8/3/10
Consumer Products 2005 and 2009	VOC	2005: $2,300/ton average, Range: Net Savings to $15,460/ton; 2009: $4,020-4,680/ton	NJAC 7:27-24	9/15/03, 11/2/07	1/25/2006, 7/22/2010
CTG Graphic Arts Flex Package	VOC	$855-2,800/ton	NJAC 7:27-16.7	8/4/08	8/3/10
CTG Graphic Arts Lith and Letterpress	VOC	Net Savings to $2,010/ton	NJAC 7:27-16.7	8/4/08	8/3/10
CTG: Fiberglass Boat Manufacturing Materials (2008 CTG);	VOC	No increased cost	7:27-16.14	1/3/17	Pending
CTG: Industrial Cleaning Solvents (2006 CTG);	VOC	Cost Savings to $2,245/ton	7:27-16.24	1/3/17	Pending
CTG: Misc. Metal and Plastic Parts Coatings (2008 CTG);	VOC	$2,167/ton	7:27-16.15	1/3/17	Pending
CTG: Paper, Film, and Foil Coatings (2007 CTG);	VOC	No increased cost	7:27-16.7	1/3/17	Pending
EGU: Boilers, Coal Fired	NO_x	Deepwater SCR: <$1,250/ton	NJAC 7:27-4.2, 10.2, 19.4	8/4/08	8/3/10
EGU: HEDD Boilers, Fuel Oil	NO_x	LNB or SNCR: $600-18,000/ton ($5,000/ton average)	NJAC 7:27-19.4	8/4/08	8/3/10
EGU: HEDD Turbines	NO_x	WI: $44,000/ton or replacement at 0.5 to 0.8 million per MW	NJAC 7:27-19.5, 19.29, 19.30	8/4/08	8/3/10
EGU: PSEG Consent Decree	NO_x	NA	NA	NA	Filed 7/26/02; amended 11/30/06
Glass Manufacturing	NO_x	Ox firing: $1,250-2,500/ton with possible cost savings of 15% on fuel, LNB and SNCR: $920-2,340/ton, Cost Savings $100/ton from annual emission fees	NJAC 7:27-19.10	8/4/08	8/3/10
ICI Boilers 2009	NO_x	$600-18,000/ton ($5,000/ton average)	NJAC 7:27-19.7	8/4/08	8/3/10
IM: Gasoline	VOC, NO_x	NQ	NJAC 7:27-15	Multiple	Multiple
IM: Heavy Duty OBD	VOC, NO_x	NQ	NJAC 7:27-14	5/16/16	Pending
IM: Diesel Smoke Cutpoint	NO_x, VOC	$1,036/vehicle	NJAC 7:27-14	6/16/08	Pending
Low Sulfur Fuel Rule	NO_x	NQ	NJAC 7:27-9	11/16/09	1/3/12
Mobile Equipment Repair and Refinishing (Autobody)	VOC	$1,534/ton	NJAC 7:27-16	8/5/02	7/2/04

Control Measure	Pollutant	Estimated Cost-Effectiveness in Rule Proposal	New Jersey Administrative Code	Rule Proposal Date	USEPA Approval
MSW Incinerators	NO_x	$2,140/ton	NJAC 7:27-19.13	8/4/08	8/3/10
Natural Gas Engines 2017	NO_x	SCR $12,458-14,357/ton	7:27-19.8	1/3/17	Pending
Natural Gas Turbines 2017	NO_x	SCR $7,033-18,983/ton, LNB $3,044-12,809, WI $6,990-26,010. Other: $4,319-16,228	7:27-19.5	1/3/17	Pending
NJLEV	VOC, NO_x	$625/ton	NJAC 7:27-29	12/20/04, 8/1/05	2/13/08
NO_x Budget	NO_x	$1800/ton	NJAC 7:27-30	2/5/07	10/1/07
NO_x RACT 2005 Boilers	NO_x	$337 to $2,350/ton	NJAC 7:27-27.19	9/20/04	7/31/07
NO_x RACT 2005 Engines	NO_x	$704 to $22,500/ton	NJAC 7:27-27.19	9/20/04	7/31/07
NO_x RACT 2005 Turbines	NO_x	$946 to $2,912/ton	NJAC 7:27-27.19	9/20/04	7/31/07
Permitting/Nonattainment New Source Review (NNSR)	All	NQ	7:27-8,18, 22	NA	NA
Petroleum Storage Tanks	VOC	$6,000-29,000/ton	NJAC 7:27-16.2	8/4/08	8/3/10
Portable Fuel Containers	VOC	$800-1,400/ton	NJAC 7:27-24	9/15/03, 11/2/07	1/25/2006, 7/22/2010
Refinery Consent Decrees: Sunoco, Valero, Conoco	All	NQ	NA	NA	NA
Sewage and Sludge Incinerators	NO_x	NQ	NJAC 7:27-19.28	8/4/08	8/3/10
Solvent Cleaning (Degreasing)	VOC	$1,400/ton	NJAC 7:27-16	8/5/02	7/2/04
Vapor Recovery 2003 Stage I	VOC	See Vapor Recovery 2003 Stage II	NJAC 7:27-16.3	8/5/02	7/2/04
Vapor Recovery 2003 Stage II	VOC	$720/ton first year, $180/ton each year thereafter; Cost per facility first year: $2,429	NJAC 7:27-16.3	8/5/02	7/2/04
Vapor Recovery 2017 Stage I and Refueling	VOC	Overall $700/ton, Nozzles and Hoses Cost Savings, Phase I $1,700/ton	NJAC 7:27-16.3	7/3/17	Pending
Vehicle Idling Rule Amendments	NO_x	NQ	NJAC 7:27-14.1, 14.3	NA	4/14/09
Voluntary Mobile Measures	All	NQ	NA	NA	NA

Legend/Notes:

NQ = Not Quantified
NA = Not Applicable
EGU = Electric Generating Unit
OBD = On-board Diagnostics
WI = Water Injection
MW = Megawatt
SCR = Selective Catalytic Reduction
RICE = Reciprocating Internal Combustion Engines
MACT = Maximum Achievable Control Technology
SNCR = Selective Non-Catalytic Reduction
ICI = Industrial, Commercial and Institutional Boilers
IM = Inspection and Maintenance for Motor Vehicles
CTG = Control Technology Guideline
All = NO_x, VOC, CO, PM2.5, PM10, SO_2

1. Turnover rule which means measure has cumulative benefits each year until complete fleet or equipment turnover

Cost-Effectiveness

In USEPA's 2016 CSAPR Update[20] and subsequent USEPA 2018 Good Neighbor Proposal, USEPA only examined controls at a cost threshold of $ 1,400/ton of NO_x reduced, significantly lower than the cost of controls already implemented in many states, including New Jersey. USEPA limits its feasibility analysis to only one set of emissions controls, using cost-effectiveness to eliminate potentially feasible controls from consideration, treating $1400/ton as the threshold for inclusion. USEPA uses the term "highly cost-effective" as the bright line for determining what measures are appropriate for fully meeting the good neighbor SIP obligations for upwind states. The marginal costs of additional controls USEPA used to set emissions budgets in the CSAPR Update were $800/ton of NO_x removed, estimated to optimize and operate existing selective catalytic reduction (SCR) units and $1,400/ton of NO_x removed estimated to turn on idled existing SCR units.

USEPA's use of cost-effectiveness is not appropriate for determining what measures are necessary to fully meet the good neighbor SIP obligations for upwind states. USEPA should expand its cost-effectiveness thresholds as its present thresholds eliminate all controls that could be installed before the next relevant attainment deadline. The 2016 CSAPR Update conclusions were limited to the purposes of a "partial" solution within a very short timeframe.[21] The 2016 CSAPR Update was putting into place a "partial" remedy designed to assist with, but not fully resolve good neighbor obligations by 2017 to help meet the 2018 attainment deadline, not the 2024 attainment deadline. These cost estimates only included costs to run or optimize existing EGU controls, not install new controls. New Jersey's "Good Neighbor" SIP demonstration includes cost thresholds greater than those considered by USEPA, which is appropriate and necessary to achieve the reductions needed to address ozone transport and shows New Jersey has met its Good Neighbor obligations.

A summary of estimated cost-effectiveness for several of New Jersey's rules has been included in Table 5 above. As can be seen in the table, New Jersey has adopted many rules that exceed USEPA's cost threshold of $1,400/ton of NO_x reduced. In New Jersey, a 2008 rule set RACT for 13 source categories, including coil-fired power plant boilers and HEDD units.[22] The NJDEP found reasonable controls for oil-fired boilers at up to $18,000 per ton, and for HEDD turbines at up to $44,000 per ton. Similarly, a 2017 New Jersey rule[23] for three types of NO_x controls for natural gas compressor engines and turbines proposed to determine that all three technologies are "commercially available" and "technically feasible" at costs ranging from $3,044 to $26,020/ton NO_x removed, with SCR costs ranging from $7,033 to $18,983/ton NO_x removed.[24] These control costs are several times greater than the thresholds set for upwind states in the 2016 CSAPR Update.

In addition, cost-effectiveness in $/ton for EGUs does not properly reflect the ozone precursor emission reductions achieved from this sector. Cost-effectiveness has traditionally been

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[20] 81 Fed. Reg. 74504, October 26, 2016.
[21] U.S. EPA Region 5 in Comment 17 on Ohio's Infrastructure SIP for the 2015 Ozone Standard Response to Comments, September 18, 2018.
Found at: https://epa.ohio.gov/portals/27/SIP/App4B_2015O3Inf_RespCom.pdf
[22] 40 N.J. Reg. 4390(a) (Aug. 4, 2008), adopted 41 N.J. Reg. 1752(a) (Apr. 20, 2009), codified in N.J. Admin. Code § 7:27-19 (subchapter on control and prohibition of air pollution from oxides of nitrogen).
[23] 49 N.J. Reg. 14(a) (Jan. 3, 2017), adopted 49 N.J. Reg. 3518(a) (Nov. 6, 2017), codified in N.J. Admin. Code. §§ 7:27-19.5(1) and -19.8(g).
[24] 49 N.J. Reg. 14(a), at 31-32.

calculated based on the estimated annual emission reductions divided by the estimated annualized costs. However, on high electric demand days, which also coincide with high temperature days and high ozone days, NO_x emissions from EGUs far exceed an annual or ozone season average. Another way to look at cost-effectiveness for EGUs would be the ratio of daily emission reductions on a HEDD day to annualized cost (DERACR.)

Further, cost effectiveness should be evaluated based on the NAAQS being addressed. A short-term standard, such as the ozone 8-hour standard, should have a short-term cost-effectiveness formula. Based on New Jersey's analysis, using a short-term evaluation formula demonstrates that sources emitting high emissions on high ozone days, or leading up to high ozone days, but have a low annual average, can be controlled using highly cost-effective strategies. An example of this approach is provided below:

<u>DERACR Example:</u>

- Two EGU Sources adding 90% effective SCR
  - Coal boiler with Low NO_x Burner (LNB)-250 MW, 3 lb/MWhr, 60% capacity factor
  - Group of Simple Cycle (SC) turbines-250 MW total, 10 lb NO_x/MWhr, 10% capacity factor
- Daily Reduction
  - Coal boiler achieves a reduction of 8 tons/HEDD day
  - SC Turbines achieve a reduction of 27 tons/HEDD day
- Annualized Cost (2017 $)
  - Coal Boiler: $ 10 million/yr
  - SC Turbines: $ 3.6 million/yr
- Daily Emission Reduction to Annualized Cost Ratio (TPD/million $)
  - Coal: 0.8 TPD/million $ annual cost
  - SC Turbines: 7.5 TPD/million $ annual cost

In conclusion, SCR on a gas or oil-fired SC turbine can be almost 10 times more cost-effective than an SCR on a coal-fired power plant on a high ozone day when it is most important, when comparing ratios of daily emission reductions to annual cost.

5.0 "Good Neighbor" Interstate Transport Infrastructure Elements of the Clean Air Act Section 110(a)(2)(D)(i)(I) for the 2008 75 ppb Ozone NAAQS

New Jersey also followed USEPA's 4-step framework, discussed above in Section 4, to determine its obligation for addressing its significant contribution to ozone at downwind nonattainment monitors and monitors predicted to potentially have challenges maintaining the NAAQS for the 2008 75 ppb ozone NAAQS. However, because the attainment date for the 2008 75 ppb ozone NAAQS was July 20, 2018, actual monitoring data is available for the analysis for 2017[25] and more relevant than outdated predicted future data for 2017 or 2023, which is beyond the serious attainment date of July 20, 2021 and contrary to the CAA direction of ensuring the attainment of the NAAQS as expeditiously as practicable.

[25] Ozone Design Values, 2017 (XLSX), July 24, 2018. https://www.epa.gov/air-trends/air-quality-design-values (accessed August 16, 2018).

Step 1: Identify downwind air quality problems

For Step 1, New Jersey used the most recently certified 2017 ozone design values that were calculated from annual ambient air monitoring data[26,27] as the basis to determine areas that are measuring nonattainment with the NAAQS. Based on "USEPA Table 5. Monitoring Site-Level Design Values for the 2015 8-Hour Ozone NAAQS" within USEPA's report, nonattainment areas with a 2015-2017 design value above 70 ppb were identified. New Jersey limited this list to those areas in USEPA Regions 1, 2, and 3, based on USEPA and OTC 2023 transport modeling, which does not show New Jersey as significantly contributing to any states outside of these regions, and the region's conceptual model for ozone air quality included in New Jersey's December 27, 2017 ozone attainment demonstration. The resulting list is shown in Table 6.

Table 6: Nonattainment Receptor Sites with Ozone Design Values >75 ppb

State Name	AQS Site ID	County Name	Designated NAA	Monitored 2015-2017 Design Value (ppb)
Connecticut	90010017	Fairfield	NY-NJ-CT	79
Connecticut	90011123	Fairfield	NY-NJ-CT	77
Connecticut	90013007	Fairfield	NY-NJ-CT	83
Connecticut	90019003	Fairfield	NY-NJ-CT	83
Connecticut	90070007	Middlesex	NY-NJ-CT	79
Connecticut	90090027	New Haven	NY-NJ-CT	77
Connecticut	90099002	New Haven	NY-NJ-CT	82
Connecticut	90110124	New London	Greater Connecticut	76
New York	360850067	Richmond	NY-NJ-CT	76
New York	361030002	Suffolk	NY-NJ-CT	76
New York	361030004	Suffolk	NY-NJ-CT	76
Pennsylvania	420170012	Bucks	PA-NJ-DE-MD	80
Pennsylvania	421010024	Philadelphia	PA-NJ-DE-MD	78
Pennsylvania	421010048	Philadelphia	PA-NJ-DE-MD	76

As shown in Table 6, New London, CT (AQS ID: 90110124) is the only monitor located outside of New Jersey's shared nonattainment areas that exceeds the 75 ppb ozone NAAQS.

As actual 2017 monitoring data is being used for this analysis, there is no predicted future maximum ozone design values for 2017, therefore, the maintenance sites are the same as the nonattainment sites; there are no maintenance-only sites.

[26] Ozone design values are the three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration at an ambient air monitoring site.
[27] Ozone Design Values, 2017 (XLSX), July 24, 2018. https://www.epa.gov/air-trends/air-quality-design-values (accessed August 16, 2018).

Step 2: Identify upwind states that contribute enough to those downwind air quality problems to warrant further review and analysis

For Step 2, a list of monitoring sites where New Jersey has a predicted 2017 significant contribution of more than 0.75 ppb, based on USEPA's 2017 [28] Transport Modeling, is shown in Table 7.

Table 7: Nonattainment Receptor Sites with Predicted New Jersey Ozone Contribution >0.75 ppb

State Name	AQS Site ID	County Name	Designated NAA	Monitored 2015-2017 Design Value (ppb)	Predicted 2017 NJ Contribution >0.75 (ppb)
Connecticut	90010017	Fairfield	NY-NJ-CT	79	9.38
Connecticut	90011123	Fairfield	NY-NJ-CT	77	8.77
Connecticut	90013007	Fairfield	NY-NJ-CT	83	8.14
Connecticut	90019003	Fairfield	NY-NJ-CT	83	9.52
Connecticut	90070007	Middlesex	NY-NJ-CT	79	5.48
Connecticut	90090027	New Haven	NY-NJ-CT	77	6.26
Connecticut	90099002	New Haven	NY-NJ-CT	82	7.27
Connecticut	90110124	New London	Greater Connecticut	76	5.22
New York	360850067	Richmond	NY-NJ-CT	76	11.90
New York	361030002	Suffolk	NY-NJ-CT	76	11.07
New York	361030004	Suffolk	NY-NJ-CT	76	7.71
Pennsylvania	420170012	Bucks	PA-NJ-DE-MD	80	4.66
Pennsylvania	420910013	Montgomery	PA-NJ-DE-MD	78	0.93
Pennsylvania	421010024	Philadelphia	PA-NJ-DE-MD	76	1.39

Step 3: Identify the emissions reductions necessary (if any), considering cost and air quality factors, to prevent an identified upwind state from contributing significantly to those downwind air quality problems; and

Step 4: Adopt permanent and enforceable measures needed to achieve those emissions reductions.

As shown in Table 7, New London, CT (AQS ID: 90110124) is the only monitor located outside of New Jersey's shared nonattainment areas that exceeds the 75 ppb ozone NAAQS based the 2017 monitored design values. As indicated by its exclusion from Table 2 in Chapter 4, the New London, CT monitor has a predicted average 2023 design value below the 2008 ozone NAAQS according to the OTC 2023 Transport Modeling. USEPA has recommended the use of the 2023 modeling for this purpose, however, New Jersey believes the USEPA 2023 transport modeling

[28] "Air Quality Modeling Technical Support Document for the Final Cross State Air Pollution Rule Update, dated August 2016," Data File with Ozone Design Values and Ozone Contributions, https://www.epa.gov/airmarkets/final-cross-state-air-pollution-rule-update, accessed August 17, 2018.

is not applicable to this analysis, as the current attainment date for the 2008 75 ppb NAAQS is July 20, 2018 based on Moderate classification and the Serious classification attainment date is July 20, 2021.

It is anticipated however, based on preliminary 2018 ozone season monitoring data that the New London CT monitor has reached attainment in 2018 due to reductions from existing control measures. The preliminary 2018 ozone season monitoring data shows the monitor in compliance with the 2008 75 ppb ozone NAAQS.

As discussed in more detail above for the 2015 ozone NAAQS, New Jersey has taken several actions to reduce ozone pollution above and beyond Federal measures and those of other states. New Jersey has met and exceeded its obligation under the Good Neighbor provisions of the CAA due to existing, adopted control measures that go beyond the current measures implemented within the Greater Connecticut (Greater CT) nonattainment area and other upwind and nearby states. Therefore, no additional measures beyond those already implemented are required for New Jersey.

Additional details regarding New Jersey's assessment for ensuring attainment and maintenance of the 2008 ozone NAAQS at those monitors within its defined nonattainment areas would be demonstrated in its Attainment Demonstration Plan consistent with the requirements of CAA section 182.

Therefore, this SIP revision also acts to fully address New Jersey's "Good Neighbor" transport obligations for the 2008 ozone NAAQS.

6.0 Negative Declaration for the Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry[29]

On October 2016, USEPA issued the CTG for the Oil and Natural Gas Industry to address existing sources of volatile organic compound (VOC) emissions and provide recommendations for Reasonably Available Control Technology (RACT). This CTG and the recommended RACT included in this CTG replace the following: *Guideline Series. Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants. December 1983. EPA-450/3-83-007*.[30] New Jersey is a moderate nonattainment area for ozone and is therefore required, pursuant to Clean Air Act Section (CAA) 184(b), to revise its State Implementation Plan to address RACT with respect to all sources covered by a CTG issued on or after November 15, 1990. RACT SIP requirements that must be addressed include revised RACT rules, if applicable, certifications where appropriate that existing rule provisions continue to be RACT, and negative declarations where there are no sources in the State applicable to a CTG.

New Jersey is making a negative declaration for the referenced CTG in accordance with Sections 172(c), 182(b), and 183(e) of the CAA that it will not incorporate the provisions of the referenced CTG into N.J.A.C. 7:27-16, "Control and Prohibition of Air Pollution by VOC," because no source in the State is applicable to the CTG, as outlined in Table 8 below.

[29] Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry, Document EPA-453/B-16-001, October 2016.

[30] New Jersey has addressed *Guideline Series. Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants. December 1983. EPA-450/3-83-007* pursuant to N.J.A.C. 7:27-16.18.

Table 8: Source Operations covered in the CTG for the Oil and Gas Industry and Their Applicability to New Jersey

Source Operations covered in the CTG for the Oil and Gas Industry	Applicability	Confirmation no source operations in NJ
Storage Vessels (CTG Section 4.0)	Crude oil, condensate, intermediate hydrocarbon liquids, and produced water storage in all segments (except distribution) of the oil and gas industry	Only distribution of oil in the state; CTG specifically excludes storage of crude oil at refineries
Compressors (CTG Section 5.0)	Centrifugal and reciprocating compressors located between the wellhead and point of custody transfer to the natural gas transmission and storage	No natural gas extraction occurs in state; only natural gas transmission and storage after natural gas has entered state through pipeline
Pneumatic Controller (CTG Section 6.0)	Controllers located from wellhead to a natural gas processing plant or from wellhead to point of custody transfer to an oil pipeline	No natural gas or oil extraction occurs in state; and no natural gas processing plant[31] operates in state
Pneumatic Pumps (CTG Section 7.0)	Pumps located at natural gas processing plants and well sites	No natural gas extraction occurs in state; and no natural gas processing plant* operates in state
Equipment Leaks (CTG Section 8.0)	All equipment (except compressors and sampling connection systems) within a process unit located at a natural gas processing plant[31] in VOC service or in wet gas service[32]	No natural gas processing plant* operates in state; and no wet gas service[32]
Fugitive Emissions (CTG Section 9.0)	Collection of fugitive emission components at a well site and gathering and boosting station, that is located from the wellhead to the point of custody transfer to the natural gas transmission and storage segment or to an oil pipeline	No natural gas extraction occurs in state; only natural gas transmission and storage after natural gas has entered state through pipeline

It is not anticipated that crude oil or natural gas extraction will be occurring in New Jersey for the foreseeable future. However, if any crude oil or natural gas extraction is proposed, the equipment involved would be subject to New Jersey's State of the Art (SOTA) requirements at N.J.A.C. 7:27-8.12 or N.J.A.C. 7:27-22.35, which would be more stringent than the provisions of the referenced CTG.

[31] Definition of *Natural gas processing plant* as listed in CTG's Model Rule: any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both. A Joule-Thompson valve, a dew point depression valve, or an isolated or standalone Joule-Thompson skid is not a natural gas processing plant.

[32] For a piece of equipment to be considered in wet gas service, the piece of equipment must contain or contact the field gas before the extraction step at a natural gas processing plant.

7.0 Conclusion

Through this Certification and "Good Neighbor" SIP revision, the State of New Jersey is demonstrating that the infrastructure and transport requirements for the 2015 70 ppb 8-hour ozone NAAQS have been satisfied. New Jersey has also demonstrated that it has fully satisfied its "good neighbor" transport obligations associated with the 2008 75 ppb 8-hour ozone NAAQS.

Based on USEPA's 4-step framework for determining significant contribution to ozone nonattainment at downwind problem monitors, New Jersey has demonstrated it is not interfering with the ability of its neighboring states to attain and maintain these standards.

To address its significant contribution to downwind states, New Jersey has taken several actions to reduce its contribution to transported ozone. Several of these measures are more stringent than upwind and nearby states such as those that reduce ozone precursor emissions on HEDD related to power generation, including behind-the-meter DG/DR electric generators, municipal waste combustors, and mobile source measures that include the adoption of the California LEV Program and vehicle idling. With these actions, New Jersey has demonstrated that it adequately addressed its contribution to ozone in downwind states. New Jersey has demonstrated that highly cost-effective and reasonable strategies greater than $1,400/ton reduced are feasible for implementation to address significant contribution associated with the 70 ppb ozone NAAQS. EPA should ensure that other nearby and upwind states implement control measures like New Jersey's within their 2008 and 2015 Ozone "Good Neighbor" SIPs to address their significant contribution of ozone to downwind nonattainment monitors.

New Jersey has addressed the Control Techniques Guidelines (CTG) for the Oil and Natural Gas Industry by submitting a negative declaration because there are no sources in the State applicable to the CTG and New Jersey's existing SOTA requirements are more stringent than the provisions in the CTG.